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TABANIDAE FROM THE STATE OF CHIAPAS, MEXICO, WITH DESCRIPTIONS OF TWO NEW SPECIES (DIPTERA)

By G. B. Fairchild

Gorgas Memorial Laboratory, Panama

A survey for Yellow Fever immunity in wild animals, primarily monkeys, undertaken by members of the staff of the Gorgas Memorial Laboratory at the request of the Pan-American Sanitary Bureau furnished an opportunity for the writer to visit several localities in the State of Chiapas, Mexico. Since records of Tabanidae from Chiapas are relatively few, it is believed that a report on the collections made may be of interest. Although all groups of biting insects were collected, only the Tabanidae will be discussed in detail here.

While we were in Chiapas about 5 weeks, from March 20 to April 25, 1951, only 20 days were actually spent in the field, collections being made in the following localities.

Tuxtla Gutierrez. This town, the capital of the state, was our headquarters in Chiapas. It lies in a broad valley in a rather dry limestone area. At the time of our visit little rain had fallen for some time, and except along the few streams, the scrubby vegetation was mostly leafless and insects little in evidence. Collecting along the banks of the Rio Sabinal, a small highly polluted stream on the outskirts of the town, yielded a few *Phlebotomus* and great numbers of *Culex* from hollows in large mango and cypress trees. *Simulium* were annoying at times around the hotel, especially during the latter part of our stay, and a few tabanids were taken on the windows of the hotel.

Ocosocoautla. This is a small town about 50 km. west of Tuxtla on the Pan American highway. Collecting was done on a forested ridge east of the town. The forest consisted mainly of evergreen oaks with fair numbers of *Bursera,* but no palms, much resembling a South Florida oak hammock. Epiphytes were very abundant. A good number of *Phlebotomus* were taken here from shallow buttresses and hollow trees, and a species of *Tabanus* was fairly abundant. Larval ticks fairly swarmed, as cattle had access to the forest. Only one visit of a few hours was made to this locality, on April 8.

Palenque. This town is situated in the north eastern corner of the state, not far from the border of Tabasco. The town itself is small and primitive, surrounded by nearly flat sandy country, partly forested and partly open grassland. We took several species of tabanids and *Phlebotomus* in swampy cut-over forest on the outskirts of the town on March 28. From that date to April 4 we were encamped in the Maya ruins which lie about 9 km. from the town on the slopes of a range of low limestone hills. Here we were surrounded by practically virgin forest of Humid Lower Tropical Zone type with abundant palms. Wild animals were quite abundant and monkeys of two genera, *Ateles* and *Allouata* were easily secured. Tabanids were very abundant, and good numbers of *Phlebotomus* and mosquitoes were taken.

Santa Maria. This is a hacienda about 51 km. north or north east of Cintalapa by road, about 35 km. airline, situated on the Rio Sta. Maria, a tributary of the Rio Grijalva. At the time of our visit there was a sawmill operating here, owned by the Coabas de Chiapas, S.A. where we made headquarters from April 10 to 19. The sawmill itself is said to be at an elevation of 800 metres and is in a narrow valley at the confluence of two small streams. Immediately adjacent to the sawmill the vegetation is of Arid Lower Tropical Zone type. Across the Rio Sta. Maria, the land rises steeply to a high ridge, the slopes clothed with heavy forest of Humid Lower Tropical Zone type with much mahogany and cedro, which was being cut for the sawmill. We made camp in this forest at a place called La Puerta,

an abandoned lumber camp about 10 km. from the sawmill and said to be at the same elevation, though probably somewhat higher. Here the forest, although considerably cut-over, consisted of very large trees with many palms. It was distinctly dryer than Palenque, though some rain fell during our stay. We were at this camp from April 10 to 13. Collecting at both the camp and the sawmill was excellent.

Much of the collecting was done with the aid of a modified Shannon trap, although the use of a horse as described by Shannon (1939, Amer. J. Trop. Med. 19 (2) : 132-133) was dispensed with. During the day large numbers of Tabanidae and some mosquitoes entered the trap, while at night a gasoline lantern placed in the center compartment attracted nocturnal mosquitoes and some *Phlebotomus*. In the following list those species believed to be hitherto unrecorded for Mexico are starred.

**Assipala melanoptera* (Hine). 19 ♀ Sta. Maria, taken attempting to bite the collector at La Puerta camp. None were taken in the Shannon trap. Previously known only from Guatemala.

Chrysops latifasciata Bell. 3 ♀ Palenque, taken attempting to bite in the forest around the ruins. 3 ♀ Sta. Maria, attempting to bite around La Puerta camp.

Chrysops pachycnemia Hine. 1 ♀ Sta. Maria, in forest near sawmill.

Chrysops scalarata Bell. 1 ♀ Palenque, in swampy forest near village.

Chrysops variegata de Geer. 9 ♀ Palenque, in swampy forest near village and wet forest below ruins.

**Chrysops willistoni* Hine. 1 ♀ Palenque, in swampy forest near village. Previously known from Guatemala.

Scione aurulans Wied. 25 ♀ Palenque, very abundant at the ruins, biting man avidly and taken in Shannon trap during the day. 9 ♀ Sta. Maria, abundant at La Puerta camp, but less annoying than at Palenque. More specimens could easily have been taken at both localities.

Esenbeckia wiedemanni Bell. 10 ♀ Palenque, attacking man, attempting to bite dead monkeys, and in the Shannon trap at the ruins. 2 ♀ Sta. Maria, in trap at La Puerta camp.

Esenbeckia illota illota Will. 1 ♀ Palenque, attempting to bite man in the forest near ruins.

Diachlorus ferrugatus Fab. 4 ♀ Palenque, in Shannon trap at ruins.

Lepiselaga crassipes Fab. 1 ♀ Palenque, in Shannon trap at ruins.

Stenotabanus minusculus Kröb. 2 ♀ Palenque, in Shannon trap at ruins. The tibiae are wholly dark, as described, not lighter as in Panama material, but I can see no other difference.

**Stenotabanus* n. sp. 9 ♂ 21 ♀ Sta. Maria, attempting to bite and in trap at La Puerta camp. 9 ♀ also taken, mostly in Shannon trap at sawmill. Described below.

Dichelacera pulchra Will. 9 ♀ Palenque, in Shannon trap at ruins and attempting to bite in the forest. 1 ♀ Sta. Maria, in trap at La Puerta camp. Smaller and less contrastingly marked than Guatemalan specimens.

Chlorotabanus mexicanus Linn. 1 ♂ Palenque, attracted to light near camp in ruins.

Leucotabanus leucaspis Wied. 1 ♀ Sta. Maria, in trap at sawmill.

**Leucotabanus canithorax* Fchld. 1 ♀ Palenque, in trap at ruins.

Tabanus (*Tabanus*) *subruber* Bell. 2 ♂ 42 ♀ Palenque, very abundant both at village and at ruins, attacking horses in swarms and humans to a lesser extent, entering Shannon trap in very large numbers, where hundreds could have been collected. 7 ♀ Sta. Maria, present in fair numbers both at camp and sawmill, but only a few collected.

Tabanus (*Tabanus*) *yucatanus* Towns. 6 ♂ 2 ♀ Ocosocoautla, males hovering a few feet above trails, females flying around collector and seen biting cattle. 3 ♂ 22 ♀ Sta. Maria, males hovering over small stream, females

in trap. 1 ♂ 1 ♀ Tuxtla Gutierrez, on hotel windows.

Tabanus (*Lophotabanus*) *oculus* Walk. 1 ♀ Palenque, in Shannon trap near ruins.

**Tabanus* (*Lophotabanus*) *piraticus* Fchld. 5 ♀ Palenque, in forest near ruins in trap and attempting to bite. 12 ♀ Sta. Maria, in trap and attempting to bite in forest around La Puerta camp. This species somewhat crepuscular.

Tabanus (*Taeniotabanus*) *lineola* var. *carneus* Bell. 1 ♀ Tuxtla Gutierrez, on hotel window.

Tabanus (*Taeniotabanus*) *amplifrons* Kröb. 1 ♀ Tuxtla, on hotel window.

Stenotabanus (Stenotabanus) chiapasensis n. sp.

Fig. 1

Female. Length 7.5-10 mm., of wing 7-8.5 mm. Eyes bare, in life purple to reddish brown with three narrow transverse bands of green or bluish green. The extreme upper margin is greenish purple or narrowly greenish blue. Frons moderately broad, about 3 times as high as wide, light yellowish grey pollinose. Basal callus black, nearly square, as wide as frons, rather protuberant and with two pits or dimples on the upper margin. No median callus in undenuded specimens, though rubbed examples may show a denuded streak on each side and indications of a fine median ridge. Vertex with a rounded flat shiny area, but without swelling, tubercle or vestiges of ocelli. Subcallus, fronto-clypeus and genae yellowish grey, paler than frons, the last two with long pale hairs. Antennae orange yellow, the annulate portion of third segment black. Basal plate longer than annulate portion, moderately wide, evenly rounded above. Palpi yellowish, white pollinose, beset with white hairs basally, black hairs apically, rather slender Proboscis short, hardly exceeding palpi, the labella large and membranous.

Mesonotum and scutellum dark blackish brown with three yellowish pollinose stripes and the lateral margins of mesonotum and apex and margins of scutellum also

yellowish pollinose, both mesonotum and scutellum beset with sparse shiny yellowish and black hairs. Pleura and sternum steel grey pollinose, thinly white haired. Wings with subepaulet bare, costa, subcosta and first vein setose above, subcosta more densely setose below; a rather long appendix on upper branch of third vein. Wings hyaline, all cross veins and fork of third vein with faint to quite intense dark clouds; apices of 2nd (R_2) and upper branch of 3rd (R_{3+4}) veins with dark clouds and apices of cells R_1, R_2 and R_4 somewhat dusky. Stigma yellow. Fore coxae yellowish, grey pollinose, pale haired. Fore femora brown, dusky at apex, mostly dark haired. Fore tibiae yellowish and yellow haired on basal half, blackish and black haired apically, as are the tarsi. Mid legs yellowish brown, the tips of tibiae and tarsi a little darker, mostly pale haired. Hind

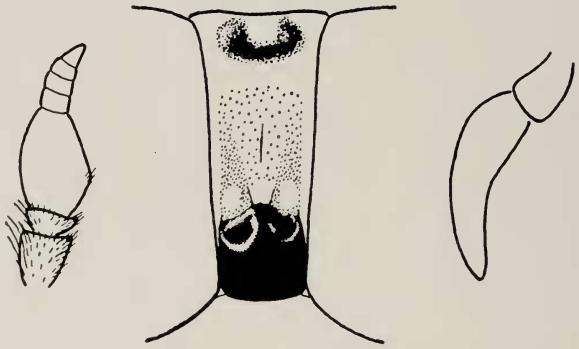

Fig. 1. *Stenotabanus chiapasensis* n. sp. Holotype. Antenna, frons and palpus x 22.

femora brown, grey pollinose, pale haired. Hind tibiae and tarsi yellowish, black haired dorsally, yellow haired beneath.

Abdomen light brown with the following pattern in yellowish and dark brown pollinosity. First tergite mainly dark brown, the anterior angles somewhat bluish, the posterior margin narrowly yellowish. Second to sixth tergites dark brown with a narrow yellowish posterior and lateral

borders, broad median longitudinal yellowish bands which reach both margins but are narrower anteriorly and small round isolated yellowish dorsolateral spots, one on each side. Seventh tergite brown with yellow posterior border. The brown areas and the dorsolateral spots are clothed with black hairs, the remaining yellow areas with yellowish hairs. Beneath the abdomen is thinly grey pollinose, wholly pale haired.

Male. 8-9 mm., of wing 7-8 mm. Head enlarged, eyes bare, holoptic, the area of large facets somewhat over 1/2 total eye area, the two types of facets well differentiated and demarkated. Large facets brown, small facets purple with two narrow green bands and a small segment of a third band at extreme outer angle. Tubercle at vertex deeply sunk between eyes, hardly discernible. Frontal triangle yellowish grey pollinose. Antennae more slender than in female, yellow, the annulate portion black. Palpi inflated, porrect, cylindrical but ending in a sharp point, clothed with long black and white hairs. Wings, legs, thorax and abdomen as in female, except that the abdominal color pattern is less sharply marked, the pollinosity sparser and all hairs longer. The abdomen is also very much more slender, the last few segments narrowed almost to a point.

Holotype, female, Hacienda Sta. Maria, on Rio Sta. Maria, 35 km. north of Cintalapa, Chiapas, Mexico, 15 April 1951.

Allotype male, same locality, 11 April 1951.

Paratypes 28 females, 7 males, same locality, 11, 15 and 18 April 1951, attempting to bite the collectors or in a Shannon trap. All Fairchild and Hartmann colls.

This little species appears to most nearly resemble *St. cribellum* O. S., sharing with it the presence of a bare patch at vertex, but no true tubercle and having a similar frons and callus. In rubbed specimens the trident-shaped median callus shown by Stone (1938) for *cribellum* is quite evident. The male, however, has but a vestige of a vertical tubercle, deeply sunk between the eyes and difficult to detect and the facets are very well differentiated, somewhat in contrast to the male of *cribellum* described by Philip (1941, p. 11). The abdominal pattern and spotted wings will easily

separate the present species from *cribellum*, *pumiloides* Will., *campechianus* Towns. and *subtilis* Bell, all of which appear to be small species with relatively broad frons and a more or less distinct median stripe on abdomen.

This species appears to me to form in some ways a connecting link between such species as *St. littoreus* Hine, and *paitillensis* Fchld. which I would place in *Aegialomyia* Philip, and the more typical species of *Stenotabanus* as represented by the Genotype *taeniotes* Wied. and the closely related *fulvistriatus* Hine. The latter have definite vestiges of ocelli on a small vertical tubercle, and the vertical tubercle of the male of at least *fulvistriatus* is quite obvious and on a level with the eyes. The eye pattern of *chiapasensis* is also closely similar to that of *fulvistriatus*. On the other hand, the relatively broader frons, lack of vertical tubercle and abdominal pattern, seem to indicate relationship to *littoreus*. The pattern of the eye in life seems to be of little help in grouping these species, as *fulvistriatus* has a pattern very much like *jamaicensis* Newst., *ananasi* Fchld. and *psamophilus* O.S., while the eyes of *littoreus* Hine have but two green bands. *Paitillensis* Fchld. is intermediate, having three green stripes, but the middle one very narrow.

I take this opportunity to describe the following new species here, since part of the material is from Chiapas, though it was not taken on our trip.

Stenotabanus (Stenotabanus) litotes n. sp.

Fig. 2

Female. Length 9-11.5 mm., of wing 9-12 mm. Eyes bare, purple with two transverse green bands separated by a purple median band of equal width. Frons yellowish grey pollinose, the basal callus dark brown to black, a little higher than wide, not quite as wide as frons, prolonged above in a spindle-shaped ridge or median callus. Vertical tubercle small but discrete, with vestiges of ocelli and surrounded by a discolored patch which may be more or less bare. Subcallus yellowish pollinose, concolorous with frons, fading to steel grey on genae and frontoclypeus. Beard pale grey. Antennae dull yellowish throughout, the first

two segments sparsely pale pollinose and black haired, the third rather slender with a weak to moderate dorsal angle. Palpi moderately inflated, slender tipped, yellowish, white pollinose, mostly black haired but with more or less white hair basally. Proboscis short, hardly exceeding palpi, brown, the labella fleshy.

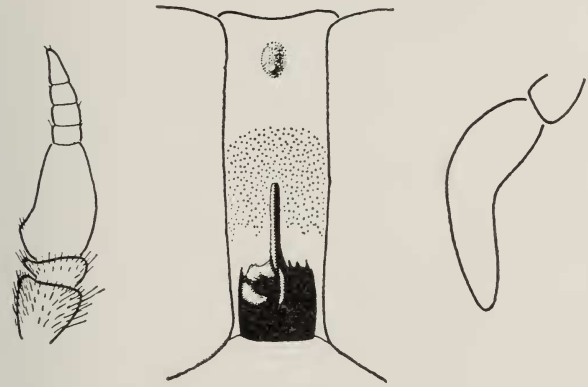

Fig. 2. *Stenotabanus litotes* n. sp. Holotype. Antenna, frons and palpus x 22.

Mesonotum light brown, thinly greyish brown pollinose and with two slender, rather faint, yellowish pollinose stripes. Both mesonotum and the concolorous scutellum clothed with pale hairs. Pleura and sternum pale grey, sparsely pale haired. Wings with subepaulet bare, costa, subcosta and first vein setose above, and a short to moderate appendix on upper branch of third vein. Wings faintly yellowish smoky, but without distinct clouds or streaks; costal cell not darker, stigma yellow. Legs dull yellowish brown, the tarsi darker and fore tibiae obscurely bicolored through having pale hairs on basal half, black hairs distally.

Abdomen brown, mainly brown pollinose, but the hind and lateral margins of all tergites pale yellowish pollinose. There are also indistinct pale pollinose narrow median triangles, in most specimens forming a faint to clear median stripe, in a few interrupted on the anterior part of each tergite. In most specimens there are no indications of dor-

solateral spots, but in a few there are obscure and ill-defined paler dorsolateral patches on some or all tergites. Pale yellowish hairs clothe the pale pollinose areas, dark hairs the dark areas. Beneath the abdomen is pale grey, wholly pale haired.

Holotype female, labelled "M.F. 4222 Vigi. Chis. 20-V-35" probably Finca Vergel, Chiapas, Mexico.

Paratypes, 2 females same locality as holotype, labelled 15-V-35 and 21-V-35; 4 females Panajachel, Guatemala, 6 Aug. 1943, and 1 female Tzanjuyu, Panajachel, Guatemala, 20 Aug. 1943, D. M. Jobbins coll.; 3 females Antigua, Guatemala, no date, J. R. de Leon coll.; 4 females Yepocapa, Dept. Chimaltenango, Guatemala, 11 Aug. (1) and 31 Oct. (3), 1949, H. T. Dalmat coll.

The holotype and the two other Chiapas specimens are from the late Dr. A. Dampf's collection, labelled in his handwriting, and sent to me by Dr. C. B. Philip. The holotype and seven paratypes are in Dr. Philip's collection, the remaining paratypes in the author's collection.

This obscurely marked little species was tentatively determined by both Dr. Philip and myself as *St. pallipes* Kröber, described from Brazil. Kröber's description was drawn from a specimen preserved in alcohol, but indicates a much paler, more yellowish insect, and the wings are described as absolutely glass clear. Three of the present series were also alcoholics, but are very much darker than Kröber's description indicates. The present species also shows differences in the frons and a somewhat broader third antennal segment and more slender palpi.

From the description of *Tabanus subtilis* Bell the present species differs in having wholly pale antennae and pale femora. Dr. Bequaert's notes on the types show that *subtilis* is a *Stenotabanus*, with bare subepaulets, and he confirms the presence of a black annulate portion to the third antennal segment.

Tabanus pumiloides Will. differs, according to the description, in having a much more marked angle on the dorsal aspect of the third antennal segment, and also in having a black annulate portion to this segment. The legs are said to be black with the tibiae basally yellow. It seems

difficult to separate *pumiloides* and *subtilis* from the descriptions. Both were described from Mexico, *pumiloides* from Guerrero and Jalisco, *subtilis* from Oaxaca. Direct type comparisons will be needed to achieve certainty in this difficult group, but the present species is separable on color characters at least.

References

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1938. Horseflies of the subfamily Tabaninae of the Nearctic region. U.S.D.A. Misc. Pub. 305: 1-171, 79 figs.

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1941. Comments on the supra-specific categories of Nearctic Tabanidae. Can. Ent., 73: 1-14.

An Australian Trapeziopelta (Hymenoptera: Formicidae). — Specimens of *Trapeziopelta* collected by me at Mt. Dandenong (2000 feet) and Olinda (1600 feet) under stones in grassy-floored moist sclerophyll (eucalypt) forest, Dandenong Ranges, Victoria, Australia compare very closely with the types of *Myopias tasmaniensis* Wheeler (1923, Psyche, 30: 177-179, fig. 1, worker), kept in the Museum of Comparative Zoology at Harvard University. My series also compared equally well with types of *Trapeziopelta diadela* Clark (1934, Mem. Nat. Mus., Melbourne; No. 8: 54-55, pl. 4, figs. 7, 8, worker and female). All of the specimens concerned belong to one species, which is correctly assigned to *Trapeziopelta* on the basis of the clypeal structure. The correct name of the species is therefore *Trapeziopelta tasmaniensis* (Wheeler), **new combination,** and *T. diadela* Clark is its **new synonym.** The species is now known from widely separated localities in Tasmania and southern Victoria, where it appears to prefer higher-rainfall sclerophyllous forest.

At least two other species of *Trapeziopelta,* remaining unstudied, occur in southeastern and northeastern Queensland. — W. L. Brown, Jr., Museum of Comparative Zoology, Harvard University.